FACT SHEET

Facts About Phosgene Oxime

What phosgene oxime is

- Phosgene oxime is a manufactured chemical warfare agent.
- Phosgene oxime is a type of agent called an urticant or nettle agent. This is because on contact with the skin, it produces intense itching and a rash similar to hives.
- Phosgene oxime is also referred to as a corrosive agent because of the type of skin and tissue damage it causes.
- Phosgene oxime was first produced in 1929, but it has never been used on the battlefield. Specific information on this chemical is very limited.
- Phosgene oxime is colorless in its solid form and yellowish-brown when it is a liquid.
- Phosgene oxime has a disagreeable, irritating odor.
- Phosgene oxime is also known by its military designation, “CX.”

Where phosgene oxime is found and how it is used

- Although phosgene oxime has been produced only as a chemical warfare agent, it has never been used during wartime.
- Phosgene oxime is not found naturally in the environment.
- Phosgene oxime vapor is heavier than air, so it will settle in low-lying areas.
- Phosgene oxime does not last in the environment for very long. It breaks down in soil within 2 hours when temperatures are normal, and it breaks down in water within a few days.

How people can be exposed to phosgene oxime

- People’s risk for exposure depends on how close they are to the place where the phosgene oxime was released.
- If phosgene oxime gas is released into the air, people can be exposed through skin contact or eye contact. They may also be exposed by breathing air that contains phosgene oxime.
- If phosgene oxime liquid is released into water, people can be exposed by touching or drinking water that contains phosgene oxime.
- If phosgene oxime liquid comes into contact with food, people can be exposed by eating the contaminated food.
- People can be exposed directly by coming in contact with liquid phosgene oxime

How phosgene oxime works

- The extent of poisoning that phosgene oxime causes depends on the amount of phosgene oxime to which a person is exposed, how the person is exposed, and the length of time of the exposure.
- Phosgene oxime produces instant and almost unbearable pain on exposed skin and exposed eyes. When inhaled, it causes immediate irritation to the respiratory (breathing) tract.
- Phosgene oxime can penetrate clothing and rubber faster than other chemical warfare agents.

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Immediate signs and symptoms of phosgene oxime exposure

- Signs and symptoms occur immediately following a phosgene oxime exposure.
- Phosgene oxime can have the following effects on specific parts of the body:
    - *Skin:* pain occurring within a few seconds, and blanching (whitening) of the skin surrounded by red rings occurring on the exposed areas within 30 seconds. Within about 15 minutes, the skin develops hives. After 24 hours, the whitened areas of skin become brown and die, and then a scab is formed. Itching and pain may continue throughout the healing process.
    - *Eyes:* severe pain and irritation, tearing, and possibly temporary blindness.
    - *Respiratory tract:* immediate irritation to the upper respiratory tract, causing runny nose, hoarseness, and sinus pain. Absorbing phosgene oxime through the skin or inhaling it may result in fluid in the lungs (pulmonary edema) with symptoms of shortness of breath and cough.
    - *Digestive tract:* no information exists on digestive tract effects in humans.
- Showing these signs or symptoms does not necessarily mean that a person has been exposed to phosgene oxime.

What the long-term health effects may be

No information is available on the long-term health effects of phosgene oxime in humans.

How people can protect themselves, and what they should do if they are exposed to phosgene oxime

- Leave the area where the phosgene oxime was released and get to fresh air. Quickly moving to an area where fresh air is available is highly effective in reducing exposure to phosgene oxime.
    - If the phosgene oxime release was outdoors, move away from the area where the phosgene oxime was released. Go to the highest ground possible, because phosgene oxime is heavier than air and will sink to low-lying areas.
    - If the phosgene oxime release was indoors, get out of the building.
- If you think you may have been exposed, remove your clothing, rapidly wash your entire body with soap and water, and get medical care as quickly as possible.
- *Removing and disposing of clothing:*
    - Quickly take off clothing that has liquid phosgene oxime on it. Any clothing that has to be pulled over the head should be cut off the body instead of pulled over the head. If possible, seal the clothing in a plastic bag. Then seal the first plastic bag in a second plastic bag. Removing and sealing the clothing in this way will help protect people from any chemicals that might be on their clothes.
    - If you placed your clothes in plastic bags, inform either the local or state health department or emergency personnel upon their arrival. Do not handle the plastic bags.
    - If you are helping other people remove their clothing, try to avoid touching any contaminated areas, and remove the clothing as quickly as possible.
- *Washing the body:*
    - As quickly as possible, wash any liquid phosgene oxime from your skin with large amounts of soap and water. Washing with soap and water will help protect you and other people from any chemicals on your body.
    - If your eyes are burning or your vision is blurred, rinse your eyes with plain water for 10 to 15 minutes. If you wear contacts, remove them before rinsing your eyes, and place them in the bags with the contaminated clothing. Do not put the contacts back in your eyes. You should dispose of them even if you do not wear disposable contacts. If you wear eyeglasses, wash them with soap and water. You can put the eyeglasses back on after you wash them.

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- If you have ingested (swallowed) phosgene oxime, do not induce vomiting or drink fluids.
- Seek medical attention right away. Dial 911 and explain what has happened.

How phosgene oxime exposure is treated

- No antidote exists for phosgene oxime. Treatment consists of removing the phosgene oxime from the body as soon as possible and providing supportive medical care in a hospital setting.

How people can get more information about phosgene oxime

People can contact one of the following:

- Regional poison control center (1-800-222-1222)
- Centers for Disease Control and Prevention
  - Public Response Hotline (CDC)
    - (800) 232-4636 (English and Spanish)
    - TTY (888) 232-6358
  - Emergency Preparedness and Response Web site (http://www.bt.cdc.gov/)
  - E-mail inquiries: cdcinfo@cdc.gov
  - Mail inquiries:
    Public Inquiry c/o BPRP
    Bioterrorism Preparedness and Response Planning
    Centers for Disease Control and Prevention
    Mailstop C-18
    1600 Clifton Road
    Atlanta, GA 30333
- Agency for Toxic Substances and Disease Registry (ATSDR) (1-888-422-8737)
  - E-mail inquiries: atsdric@cdc.gov
  - Mail inquiries:
    Agency for Toxic Substances and Disease Registry
    Division of Toxicology
    1600 Clifton Road NE, Mailstop E-29
    Atlanta, GA 30333

This fact sheet is based on CDC's best current information. It may be updated as new information becomes available.

Last reviewed on 03/18/03.

The Centers for Disease Control and Prevention (CDC) protects people's health and safety by preventing and controlling diseases and injuries; enhances health decisions by providing credible information on critical health issues; and promotes healthy living through strong partnerships with local, national, and international organizations.

For more information, visit www.bt.cdc.gov/chemical, or call CDC at 800-CDC-INFO (English and Spanish) or 888-232-6348 (TTY).

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